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1061. M. uncinata Braun. Ell.

EQUISETACEÆ.

Equisetum, Horse-tail.

1062. E. arvense L. Law.
1063. E. sylvaticum L. Law.
1064. E. pratense Ehr. Law.: Snow.
1065. E. robustum Braun. Law., Sal.
1066. E. hyemale L. Scouring Rush. Law.

FILICES, FERNS.

Botrychium, Grape Fern.

1067. B. lunarioides Swz. Leav.: Mr. Wilson.
1068. B. Virginicum L. Rattlesnake Fern. Leav., Law.

Polyodium, Polypod.

1069. P. incanum Ph. Burl.: Mrs. J. N. Locke.

Notholæna.

1070. †N. dealbata Kunze. Humboldt. Brought to Prof. Knox.

Onoclea, Sensitive Fern.

1071. O. sensibilis L. Leav.
—— O. sensibilis var. obtusilobata Torr. Leav.: Wilson.

Struthiopteris, Ostrich Fern.

1072. S. Germanica Willd. Law.

Pellæa, Rock Brake.

1073. P. atropurpurea Link. (Pteris, L.; A. Nosorus, Gr.) Leav., Humboldt; Prof. Knox.

Adiantum, Maidenhair.

1074. A. pedatum L. Leav., Law.

Asplenium, Spleenwort.

1075. A. angustifolium Mx. Leav.
1076. A. filix-fœmina Bernh., lady fern. Leav.: Wilson.

Camptosorus, Walking Fern.

1077. C. rhizophyllus Link. (Antigramma, Smith.) Leav.

Woodsia, Rock Polypod.

1078. W. obtusa Torr. Leav.

Cystopteris, Bladder Fern.

1079. C. fragilis Bernh. Leav., Law.

Aspidium, Shield Fern.

1080. A. Goldionum Hook. Leav.
1081. A. spinulosum Willd. Law.: Saunders.

HEPATICÆ.

Marchantia.

1082. M. polymorpha L. Law.: Saunders.

Orders, 107; genera, 443; species, 1082. species not native, about 41; species not east of the Mississippi, 150.

METEOROLOGICAL SUMMARY FOR 1876.

Prof. F. H. Snow's Annual Report As Meteorologist To The State Board Of Agriculture.

Station: Lawrence, Kansas. Latitude 38°58′; longitude 95°16′; elevation of barometer and thermometers, 884 feet above the sea level, and 14 feet above the ground; rain gauge on the ground; anemometer, 105 feet above the ground, on the dome of the University building, 1,150 feet above the sea level.

The chief peculiarities of the weather of 1876 were as follows:

1. The high temperatures of the first two months of the year, which were the warmest January and February on our nine year's record. These were followed by the coldest March on our record; colder than either of the three preceding winter months, and bringing with it seventeen inches of snow.
2. The absence of great extremes of either heat or cold.
3. The large and well-distributed rainfall, which resulted in immense crops of wheat and corn in all parts of the State. This result is mentioned as a peculiarity, not as an exception. In only one of the nine' years record has there been a serious shortening of crops on account of a deficiency in the amount or distribution of the annual rainfall.

TEMPERATURE.

Mean temperature of the year 52°.76, which is only 0°.06 below the mean of the eight preceding years. The highest temperature was 98° on the 23d of June; the lowest temperature was 5° below zero, February 1st and December 30th, giving a yearly range of 103°. Mean temperature at 7 A. M., 47°.44; at 2 P. M., 62°.33; at 9 P. M., 50°.76.

Mean temperature of the winter months 32°.03 (a slight fraction above the freezing point), which is 3°.62 above the average winter temperature; of the spring, 51°.62, 1°.34 below the average; of the summer, 75°.51, 1°.26 below the average; of the autumn, 51°.87, 0°.53 below the average.

The coldest month of the year was December, with mean temperature of 23°.60; the coldest week was December 24th to 30th, with mean temperature 14°.60; the coldest day was February 1st, with mean temperature 1°.60. The mercury fell below zero only four times, once in February and three times in December.

The warmest month of the year was July, with mean temperature 78°.60; the warmest week was July 15th to 21st, with mean temperature 82°.14; the warmest days were June 23d, July 17th and 19th, each with mean temperature 85°.5. The mercury reached or exceeded 90° on thirty-six days, viz.: six in June, twelve in July, fourteen in August and four in September. The mercury did not reach 100° during the year.

The last frost of spring (quite severe) was on April 5th, the first light frost of autumn was on September 29th, giving an interval of 177 days entirely without frost. The first severe frost of autumn was on October 1st, giving a period of 179 days without severe frost. No frost or cold weather during the year caused any damage to fruit or fruit buds.

RAIN.

The entire amount of rain, including melted snow, was 44.18 inches, which is greater by 5.67 inches than any previous annual rainfall upon our record, and is 11.20 inches above the average annual amount for the eight preceding years. Either rain or snow fell on 102 days. The unusual amount of rain was well distributed, there being no damaging excess or deficiency in any month of the growing season. The longest interval without rain from March 1st to October 1st was nine days. The number of thunder showers was twenty-nine.

SNOW.

The entire depth of snow was 24¾ inches, of which one-fourth of an inch fell in February, 17 inches in March, 3½ inches in November, and 4 inches in December. The last snow of spring was on March 28th; the first snow of autumn was on Nov. 13th.

FACE OF THE SKY.

Average cloudiness of the year, 41.27 per cent. of the sky, which is 4.22 per cent less than the average for the eight preceding years. The number of clear days (less than one-third cloudy) was 182; half-clear days (from one-third to two-thirds cloudy), 105; cloudy (more than two-thirds), 79. There were 49 days without a cloud, and 31 without a trace of sky. August was the clearest month, with mean cloudiness 26.66 per cent.; March was the cloudiest month, with mean cloudiness 60.45 per cent. The mean cloudiness at 7 A. M. was 44.31 per cent.; at 2 P. M., 44.12 per cent.; at 9 P. M., 35.39 per cent.

DIRECTION OF THE WIND.

During the year, three observations daily, the wind was from the N. W. 330 times; S. W., 313 times; S. E., 147 times; N. E., 135 times; S., 66 times; E., 43 times; N., 32 times; W., 22 times; calm, 10 times. The south (including southwest, south and southeast) winds outnumbered the north (including northwest, north and northeast) winds, in the ratio of 526 to 497.

VELOCITY OF THE WIND.

The number of miles traveled by the wind during the year was 148,120. This gives a mean daily velocity of 404.70 miles, and a mean hourly velocity of 16.85 miles. The highest hourly velocity was 75 miles, on April 19th; the highest daily velocity was 1,010 miles, on February 1st; the highest monthly velocity was 15,690 miles, in March. The winds of the first half of the year were much stronger than those of the second half. The lightest winds were in July and August.

BAROMETER.

Mean height of the barometer, 29.102 inches—precisely the same as in 1875. Mean at 7 A. M., 29.126 inches; at 2 P. M., 29.079 inches; at 9 P. M., 29.100 inches. Maximum, 29.754 inches, on November 30th; minimum, 28.434 inches, on October 20th; yearly range, 1.320 inches. The highest monthly mean was in December, 29.260 inches; the lowest was in June, 29.010 inches. The barometer observations are corrected for temperature and instrumental error, but not for elevation.

RELATIVE HUMIDITY.

The average humidity of the air for the year was 66.8; at 7 A. M., 77.9; at 2 P. M., 48.08; at 9 P. M., 74.65. The dampest month was July—mean humidity, 78.6; the dryest month was February, with mean humidity 59. There were only four fogs during the year. The minimum humidity at any single observation was only 7.6 per cent., or about one-thirteenth of saturation.

The following tables give the mean temperature, the extremes of temperature, the relative humidity, and the rainfall for each month of the year 1876, and a comparison with preceding years:

MONTHS	MEAN TEMPERATURE	MAXIMUM TEMPERATURE	MINIMUM TEMPERATURE	RELATIVE HUMIDITY	RAINFALL IN INCHES	EXCESS OR DEFICIENCY OF RAINFALL
January	34.70	65.5	2	68.4	0.57	0.72†
February	37.80	74.5	−5	59.0	0.36	0.58†
March	34.25	66.0	0	69.4	4.51	2.34*
April	55.60	87.5	30	59.6	3.38	0.46*
May	65.00	89.0	39	64.5	6.75	3.09*
June	70.24	98.0	50	68.6	12.11	8.54*
July	78.60	95.0	60	72.7	3.51	1.32†
August	77.70	94.0	63	72.4	4.45	0.23*
September	64.70	92.0	34	68.6	3.58	0.18*
October	53.40	83.5	25	59.8	1.93	0.41†
November	37.50	72.0	9	70.9	2.60	0.88*
December	23.60	66.0	−5	68.9	0.43	1.47†
Year 1876	52.76	98.0	−5.0	66.8	44.18	11.20*
" 1875	50.60	99.0	−16.5	65.5	28.87	4.11†
" 1874	54.20	108.0	−3.0	65.5	28.87	4.11†
" 1873	52.71	104.0	−26.0	64.0	32.94	0.04†
" 1872	51.90	97.0	−18.0	64.4	32.63	0.35†
" 1871	54.30	103.0	−6.0	....	33.23	0.25*
" 1870	54.50	102.0	−10.0	68.4	31.38	1.60†
" 1869	50.99	96.0	−5.0	....	38.51	5.53*
" 1868	53.36	101.0	−16.5	....	37.42	4.44*

*Excess. † Deficiency.